Electronic TUBES

6FG7-5FG7

TRIODE—PENTODE

For VHF Converter Applications

DESCRIPTION AND RATING

The 6FG7 is a miniature tube that contains a medium-mu triode and a sharp-cutoff pentode in one envelope. Primarily designed for use as a combined triode oscillator and pentode mixer in VHF television receivers, the tube features two cathode leads connected to separate base pins to reduce the effective cathode lead inductance.

Except for heater ratings, the 5FG7 is identical to the 6FG7.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

	5FG7	6FG7	
Heater Voltage, AC or DC	4.7	6.3	Volts
Heater Current	0.6±6%	0.45±6%	Amperes
Heater Warm-up Time†	11	11	Seconds

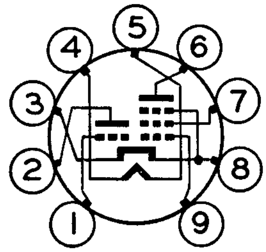
Direct Interelectrode Capacitances

	With Shield‡	Without Shield	
Pentode Section			
Grid-Number 1 to Plate: (Pg1 to Pp), max.	0.01	0.02	μμf
Input: Pg1 to (h+Pk+Tk+Pg2+Pg3)	5.0	5.0	μμf
Output: Pp to (h+Pk+Tk+Pg2+Pg3)	3.4	2.4	μμf
Triode Section			
Grid to Plate: (Tg to Tp)	1.8	1.8	μμf
Input: Tg to (h+Pk+Tk+Pg3)	3.0	3.0	μμf
Output: Tp to (h+Pk+Tk+Pg3)	1.9	1.3	μμf
Heater to Cathode: h to (Pk+Tk+Pg3)	6.0§	6.0	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

BASING DIAGRAM

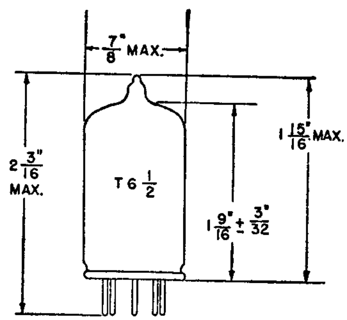


EIA 9GF

TERMINAL CONNECTIONS

Pin 1—Triode Grid
Pin 2—Triode Plate
Pin 3—Cathode
Pin 4—Heater
Pin 5—Heater
Pin 6—Pentode Plate
Pin 7—Pentode Grid Number 2 (Screen)
Pin 8—Cathode and Pentode Grid Number 3 (Suppressor)
Pin 9—Pentode Grid Number 1

PHYSICAL DIMENSIONS



EIA 6-2

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

	Pentode Section	Triode Section	
Plate Voltage	330	330	Volts
Screen-Supply Voltage	330	——	Volts
Screen Voltage—See Screen Rating Chart, Page 7			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Plate Dissipation	3.0	2.5	Watts
Screen Dissipation	0.55	——	Watts
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

These values are chosen by the tube manufacturer to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, variation in characteristics of all other tubes in the equipment, equipment control adjustment, load variation, signal variation, and environmental conditions.

CHARACTERISTICS AND TYPICAL OPERATION

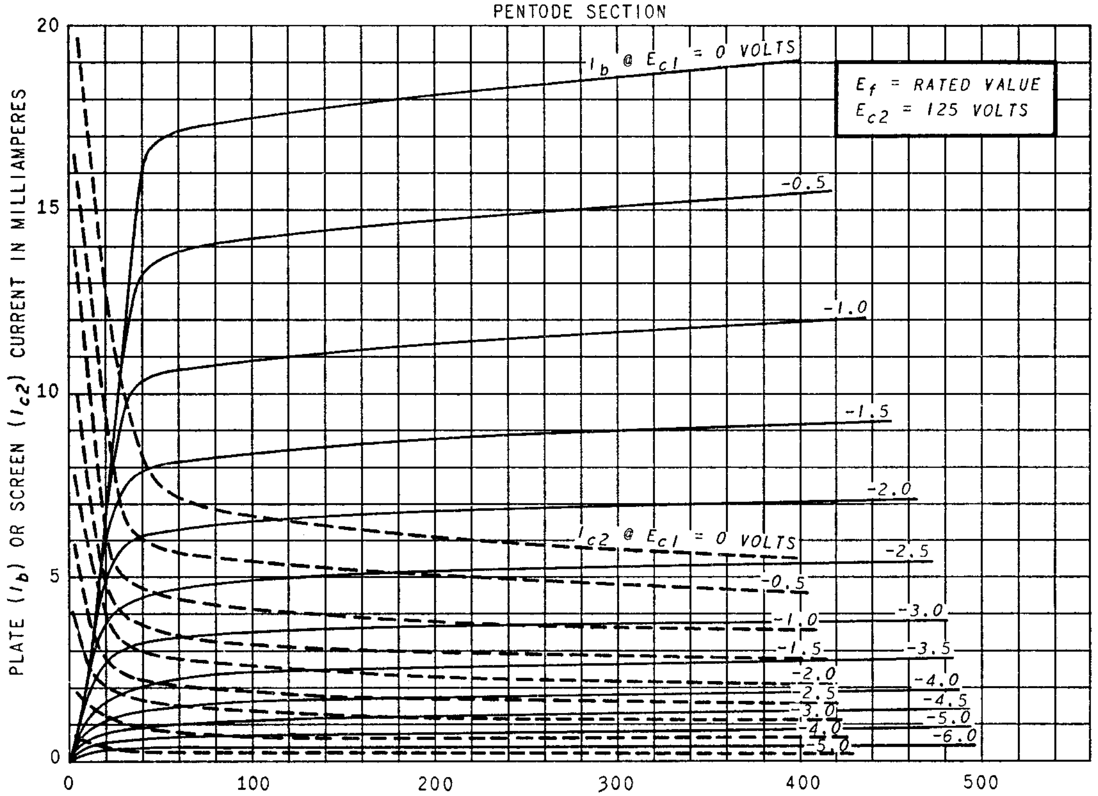
AVERAGE CHARACTERISTICS

	Pentode Section		Triode Section	
Plate Voltage	100	125	125	Volts
Screen Voltage	100	125	——	Volts
Grid-Number 1 Voltage	0	−1.0	−1.0	Volts
Amplification Factor	——	———	43	
Plate Resistance, approximate	——	180000	5700	Ohms
Transconductance	7400	6000	7500	Micromhos
Plate Current	——	11	13	Milliamperes
Screen Current	——	4.0	——	Milliamperes
Grid-Number 1 Voltage, approximate				
Ib = 30 Microamperes	——	−7.5	−6.5	Volts

† The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.
‡ With external shield (EIA 315) connected to cathode of section under test unless otherwise indicated.
§ With external shield (EIA 315) connected to ground.

AVERAGE PLATE CHARACTERISTICS

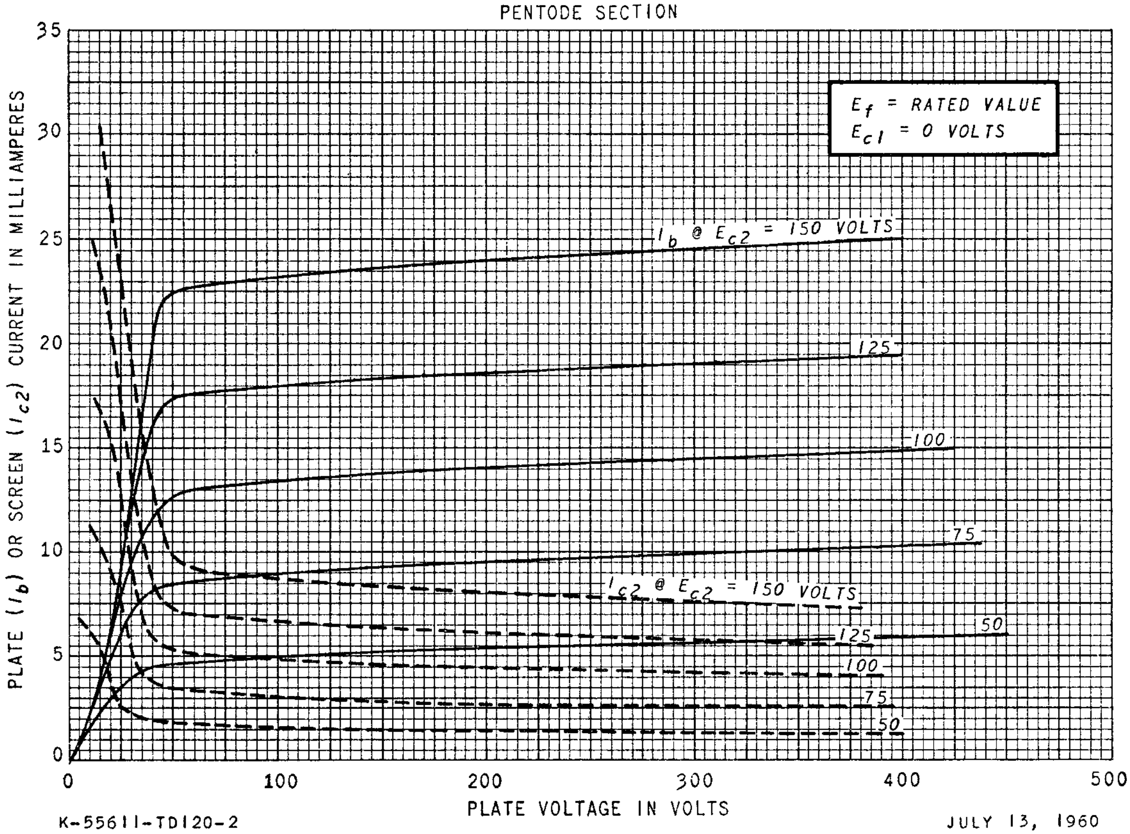
PENTODE SECTION



K-55611-TD120-1 JULY 13, 1960

AVERAGE PLATE CHARACTERISTICS

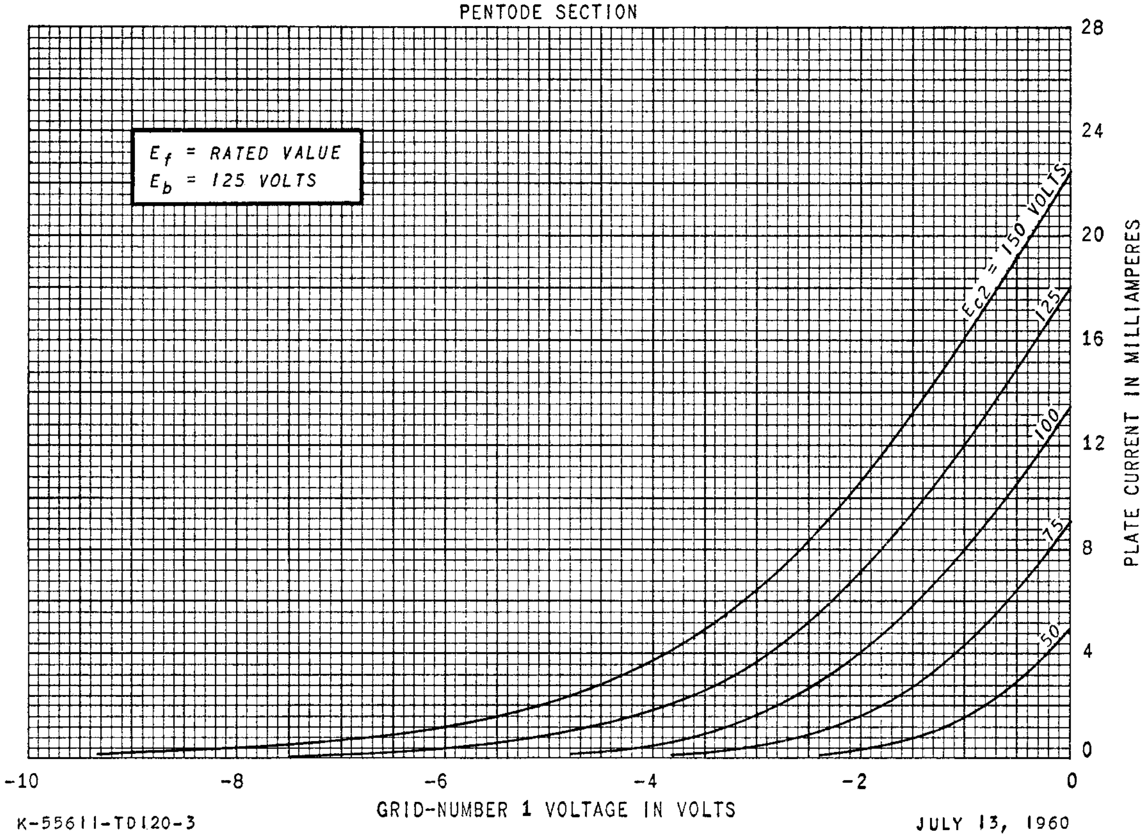
PENTODE SECTION



K-55611-TD120-2 JULY 13, 1960

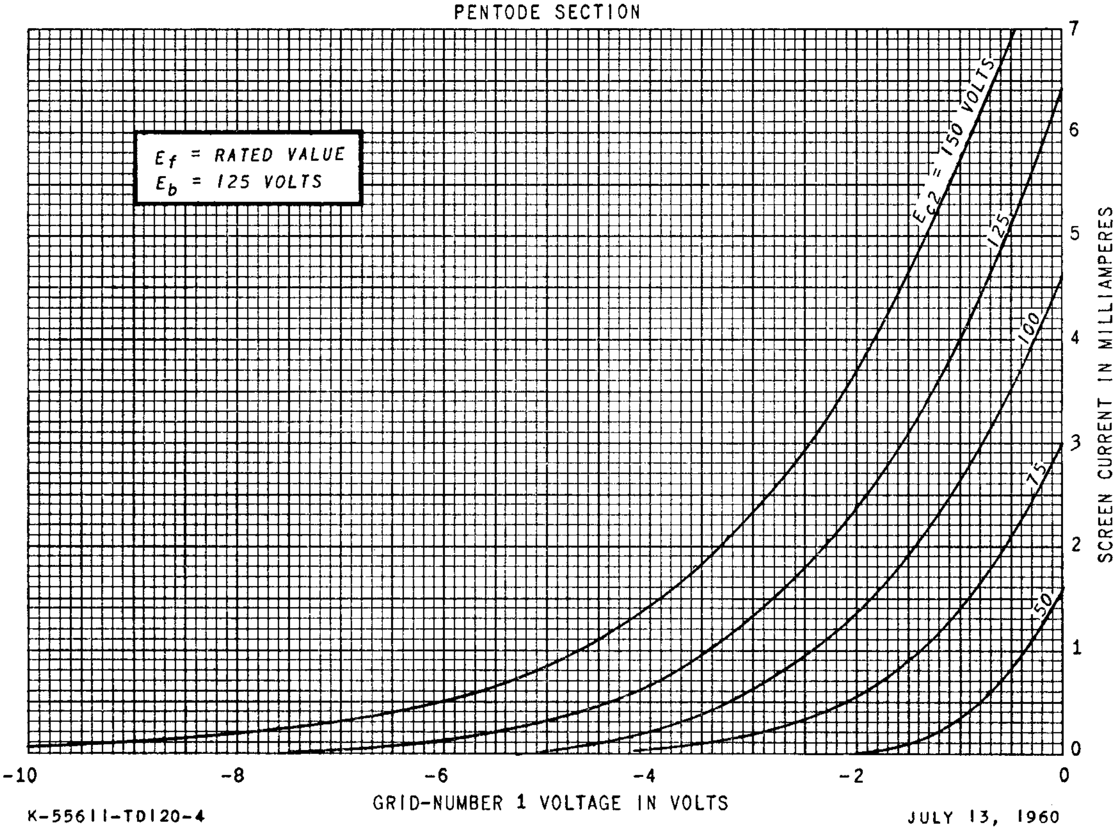
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



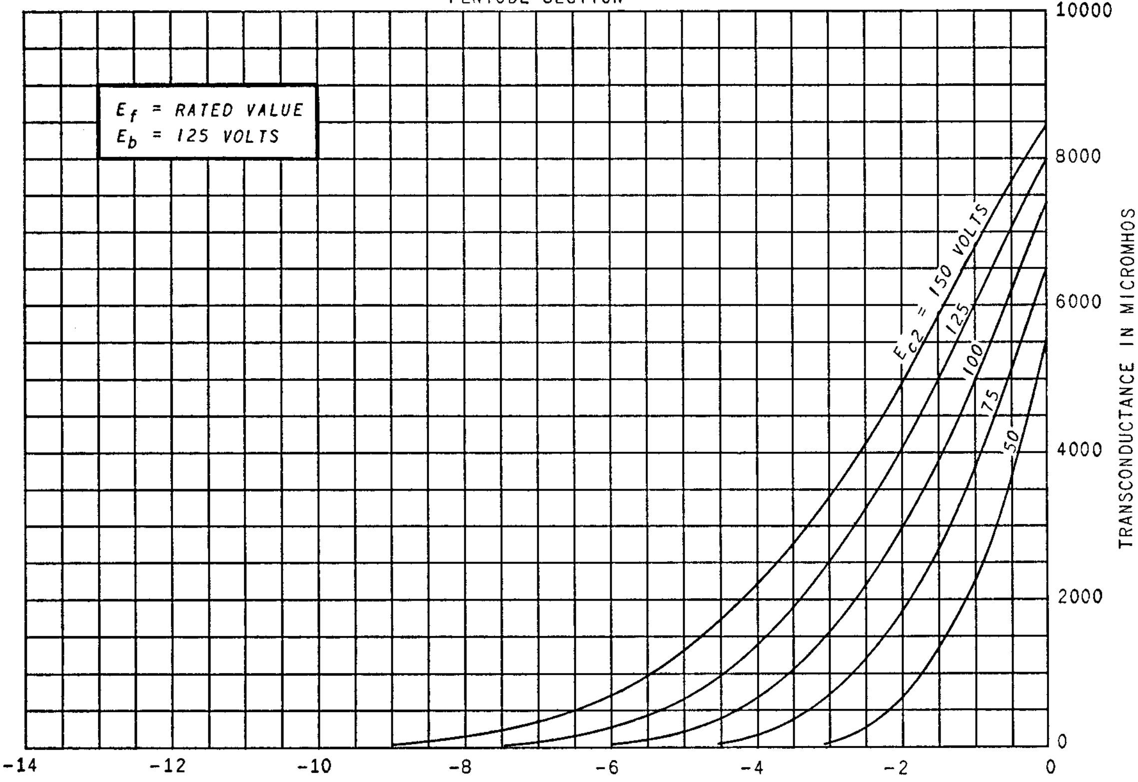
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

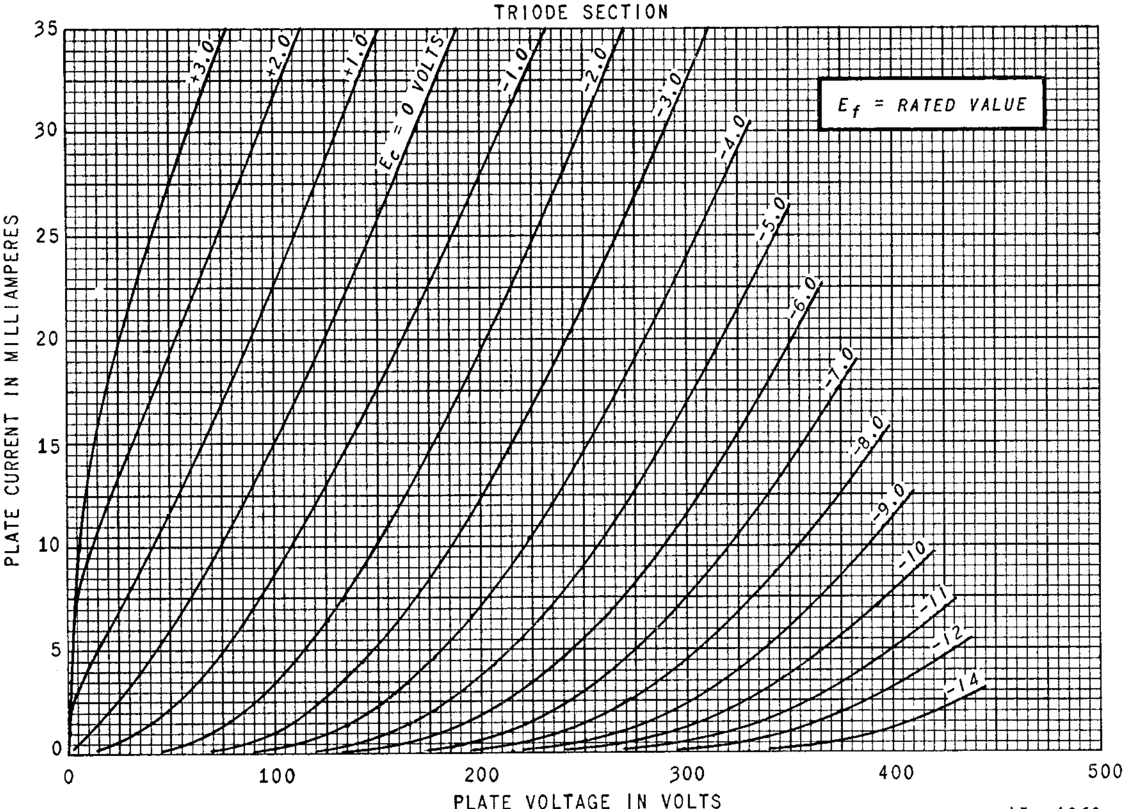


K-55611-TD120-5

JULY 13, 1960

AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

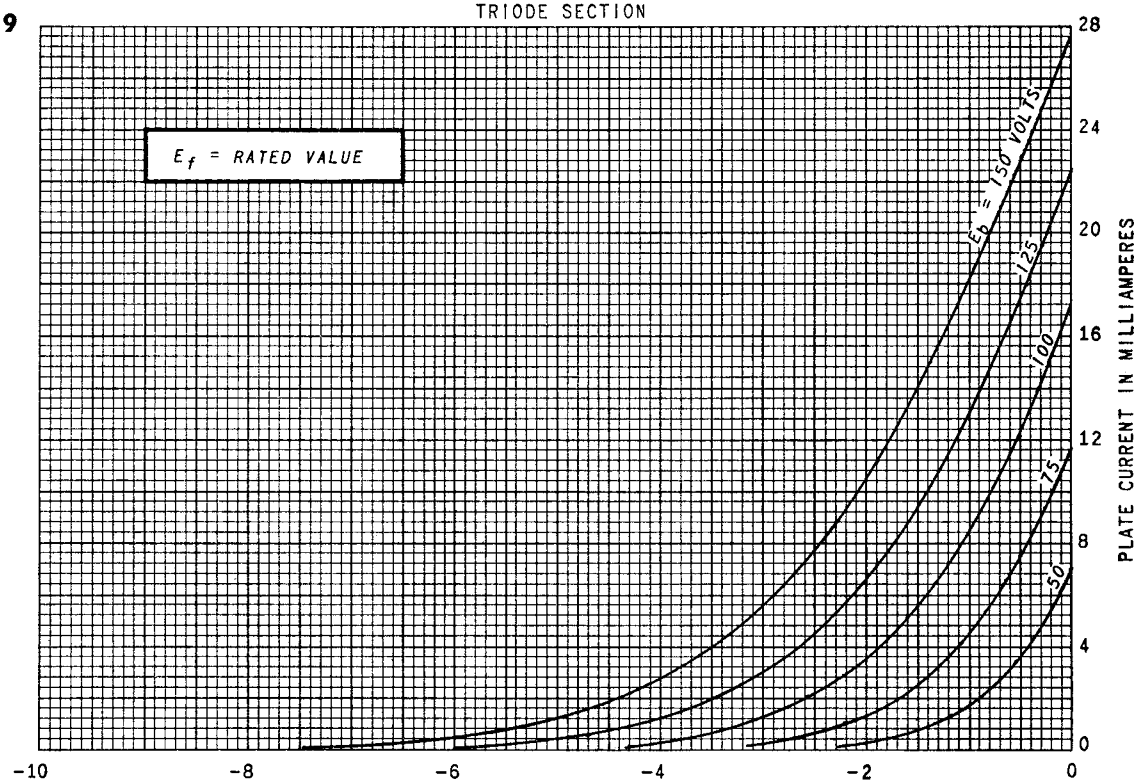


K-55611-TD120-6

JULY 13, 1960

AVERAGE TRANSFER CHARACTERISTICS

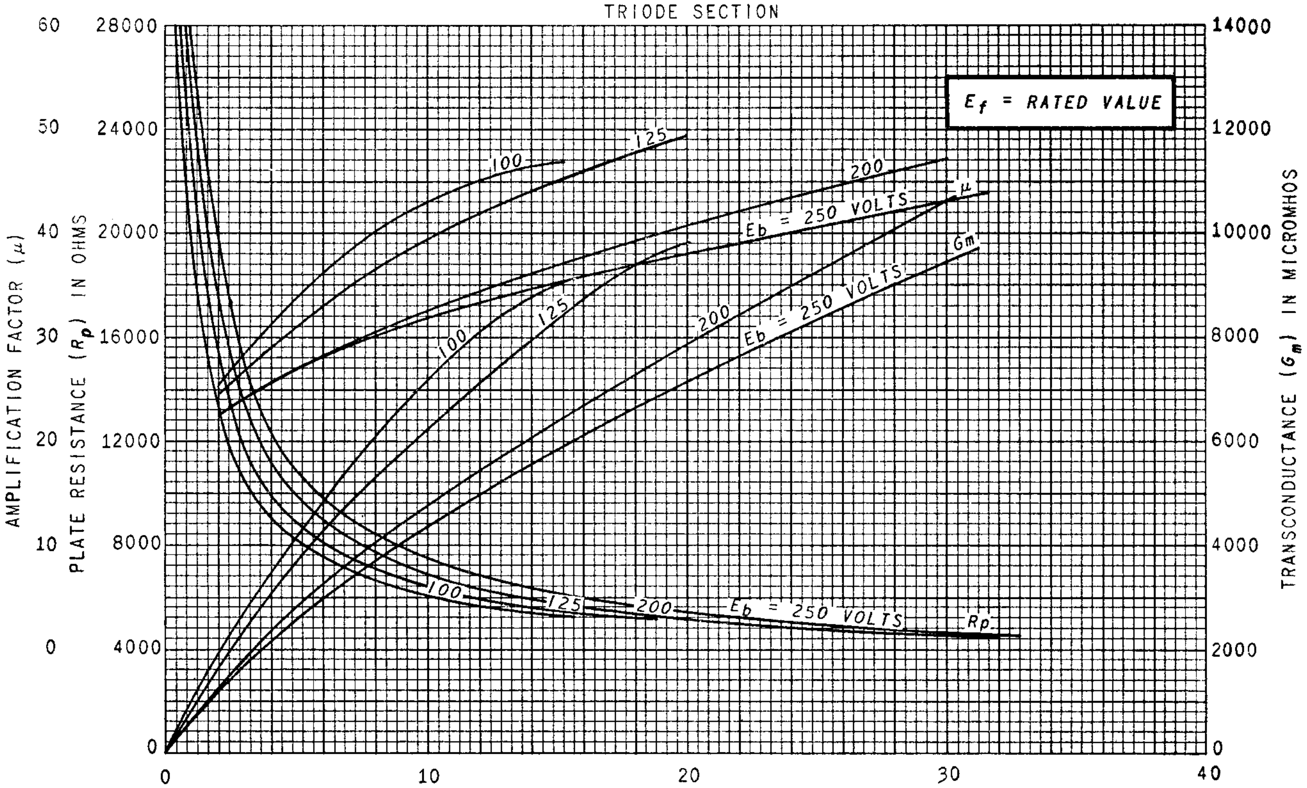
TRIODE SECTION



K-55611-TD120-7 JULY 13, 1960

AVERAGE CHARACTERISTICS

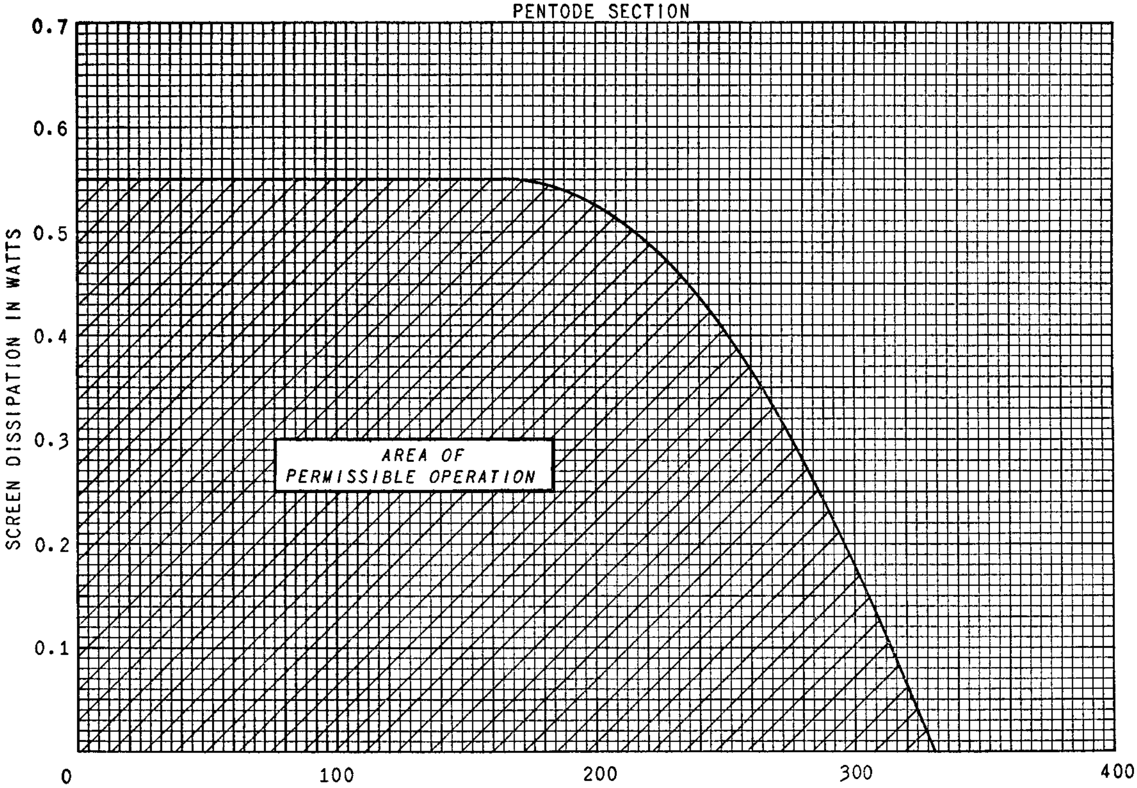
TRIODE SECTION



K-55611-TD120-8 JULY 13, 1960

SCREEN RATING CHART

PENTODE SECTION



K55611-TD17-1

NOVEMBER 14, 1957